different occasions, and the answers make me wiser about myself.

William of Occam (c. 1285–1349), the English nominalist philosopher and sometime General of the Franciscan order, said that things should not be multiplied beyond necessity. I believe that because a pluralistic approach is, today, necessary, it does not transgress that 14th century principle.

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Closing address to 5th Colloquium on Conventional Medicine and Complementary Therapies, 10 December 1985

Science versus non-science in medicine: fact or fiction?

'Don't underestimate the importance of an awareness of what lies beneath the surface of the visible world and of those ancient unconscious forces which still help to shape the psychological attitudes of modern man. Sophistication is only skin deep and when it comes to healing people it seems to me that account has to be taken of those sometimes long-neglected complementary methods of medicine'.

The above quotation comes from the address made by HRH Prince Charles to the British Medical Association to mark its 150th anniversary. It is appropriate therefore to acknowledge from the start the efforts of the Prince which have been the catalyst in establishing a dialogue between the disparate membership of the RSM's Colloquia on Conventional Medicine and Complementary Therapies.

Nevertheless, there have been occasions during previous meetings of this group when a robust and healthy argument has been forfeited for an exchange of generalities couched in the language of polite diplomacy. For example, if I would stand up at a meeting of the Royal Geological Society and claim that the earth was flat, there would no doubt be members of the audience who would leap to their feet to refute such a suggestion. I am sure Prince Charles would have welcomed, and for that matter have enjoyed, a vigorous debate, but in the event the people present on past occasions seem to have been inhibited. My personal explanation for the cause of such inhibition is that none of us wish to see ourselves portrayed as

reactionary stereotypes. In particular, members of the orthodox medical profession fear to have themselves exposed as establishment figures with closed minds and a lack of compassion. Yet I am sure that on a number of occasions during the last three or four Colloquia we have felt like the little boy in Hans Christian Andersen's tale of the 'Emperor's new clothes'.

Nonetheless I have learnt a number of very valuable lessons from attending these meetings, and I recognize that in conventional medicine we certainly have at least two failings. We frequently fail as communicators with our patients and we frequently fail to fulfil the pastoral role that our clients require of us. But in our defence it is difficult to know just to what extent it is appropriate for a doctor to assume a pastoral role. I think it is presumptuous for us to encroach in a flat-footed and unskilled way into the territory of the clergy, but I have no doubt at all that any good doctor, trained within any of our medical schools, should approach his work with patients in a holistic manner. It seems to me that many complementary therapists, and others interested in these approaches, have hijacked the idea of holism. It is true, of course, that there are doctors who are not very good at their job who do not handle their patients and their illness in a holistic manner. Doubtless the same is true of complementary therapists, but it must be refuted as sheer nonsense to say that conventional medicine is not holistic in its

In both the biological and psychological spheres and at their interface, contemporary research and clinical investigations are holistic. It is nonsensical to expect a rigid Cartesian model of a human being to give any kind of satisfactory account of the phenomena of homeostasis, yet there are subtle differences between the types of holism which we practise and that which fringe practitioners preach. The ideas of holism described by our 'complementary' colleagues are completely metaphysical and relate to some as yet undiscovered, and for all we know non-existent, 'natural life force', whereas in orthodox medicine our concepts of holism are based on well defined neuroendocrine pathways which are known to link the psyche and the soma. Furthermore, we can recognize, measure and manipulate the chemical and cellular messages that pass throughout the body linking cell to cell and organ to organ, which in health act in perfect concert.

Many homoeopathic practitioners choose to stigmatize drugs such as cimetidine as powerful allopathic repressive therapy that poisons the natural reparative capacity of the body. I choose to look upon this group of drugs as restoring the natural harmony between the sympathetic and parasympathetic nervous systems, following which established mucosal ulcers will heal under the natural stimulii of local cellular growth factors and hormones. We know this class of drug will heal established ulcers, prevent bleeding and perforation and avoid the necessity for surgery. Homoeopathy, acupuncture and meditation have no such proven record for all their efforts to restore the balance of hypothetical natural fluxes.

Returning once more to the pastoral role of the physician, let us consider the term 'undifferentiated illness', a popular description for many patients consulting homoeopathists. I believe that alternative models exist to describe and explain this condition.

0141-0768/87/ 060332-02/\$02.00/0 © 1987 The Royal Society of Medicine For example, I may choose to describe undifferentiated illness as the somatic manifestation of unhappiness. Unhappiness may be a result of loss of faith or psychological trauma in our childhood or adolescence. Perhaps these unhappy people would be better off seeking the ministry of the Church, or consulting a psychotherapist. To describe the popular obsession with complementary medicine in the treatment of 'undifferentiated illness' as a failure of orthodox medicine is therefore only one interpretation of the truth. Alternative explanations might invoke a failure of the Church to cope with contemporary social problems, or a disenchantment with the psychotherapeutic model in modern society. My own personal prejudice would be to classify 'undifferentiated illness' as a spiritual malaise requiring an infusion of spiritual solace rather than exposure to the pseudoscientific gobbledegook of the acupuncturist.

We all of us have our faiths, but to try and convert a Christian who should be seeking spiritual solace in his Church to a course of homoeopathy whenever he or she is unhappy, should be seen as an activity in the realm of proselytism.

In order to clarify our thinking at this point, it is important that we make a clear distinction between what is science and what is non-science. For a start, non-science does not mean nonsense, but non-science has to be equated with the areas of faith that cannot be subjected to tests of validation or refutation.

The characteristic feature of the scientific method which distinguishes it from the area of faith is that scientists are prepared to expose all their favoured hypotheses to the hazards of refutation. In other words, true scientists are intellectually honest. This does not mean that they lack imagination, because the first step in the scientific method involves the construction of a hypothesis which by its very nature is a creation of imaginative flair. It is always possible to corroborate your hypothesis by inductive reasoning, seeking only the evidence that supports your ideas and ignoring or blinding yourselves to any contradictory data. There will, of course, be examples in the history of science where great ideas have gained spectacular corroboration by use of the inductive process alone. For example, William Harvey described the circulation of the blood 100 years before Anthoni von Leeuwenhoek demonstrated the capillaries, following the invention of the microscope. Now in historical terms (using the retrospectoscope) we can say that Harvey's brilliant leap of imagination turned out to be one of the most important milestones in the development of medical science, yet it would be a dangerous syllogism to argue that any brilliant leap of imagination is an idea ahead of its time. So, for the day-to-day purposes of evaluating scientific claims we still require painstaking, laborious and above all honest deductive research. If it is stated to be impossible to design the scientific research protocols to test the validity of a therapeutic claim, then such claims must be judged to be within the realm of faith and valued accordingly.

The hazards of faith masquerading as science are to be experienced both within the realms of orthodox and complementary medicine. Where the treatments on offer are noninvasive and non-toxic, as is mostly the case in complementary medicine (and provided the patient is not denied truly effective therapy), there is no real danger. However, when the treatments on offer are mutilating and life-threatening, as may be the case in orthodox medicine, then the hazards of inductivism are self-evident. Happily there can be a high degree of congruence on methods of evaluation of therapy, and certainly there are many areas in complementary medicine that lend themselves to the conventional scientific method. At the same time, there are certain approaches that cannot be evaluated using the scientific paradigm, and assuming that patients are not denied proven remedies or subjected to dangerous abuses, we can rest content with the knowledge that such approaches are a substitute for faith.

Science and non-science share no common ground in our metaphysical approach to life but they certainly share common aims, which are to improve the quality as well as the length of an individual's life and at the end improve the quality of dying. Furthermore, what is non-science today may indeed become the science of tomorrow and with these thoughts in mind the complacencies of both schools of thought must be shaken. I recently addressed a conference at St Galen in Switzerland entitled 'Krebs und alternativa medizina'. Mine was the only paper read in English and was therefore the only one I understood. For the rest of the day I suffered the frustration and boredom of sitting through a series of papers both from orthodox and complementary therapists without understanding the language. In contrast, at these Colloquia we have begun to understand each other and we must use this fine start to the best advantage to accommodate the ideas and precepts of science and those of complementary therapies. We must look for a single standard of high quality research that will be applicable to both areas of investigation and we must continue to search for a language that all of us can understand. In the meantime, perhaps the best compromise between the apparently contradictory claims of mystery and the mind is to remember Bayne's dictum: 'We have to see that the spirit must lean on science as its guide in the world of reality and that science must turn to the spirit for the meaning of

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